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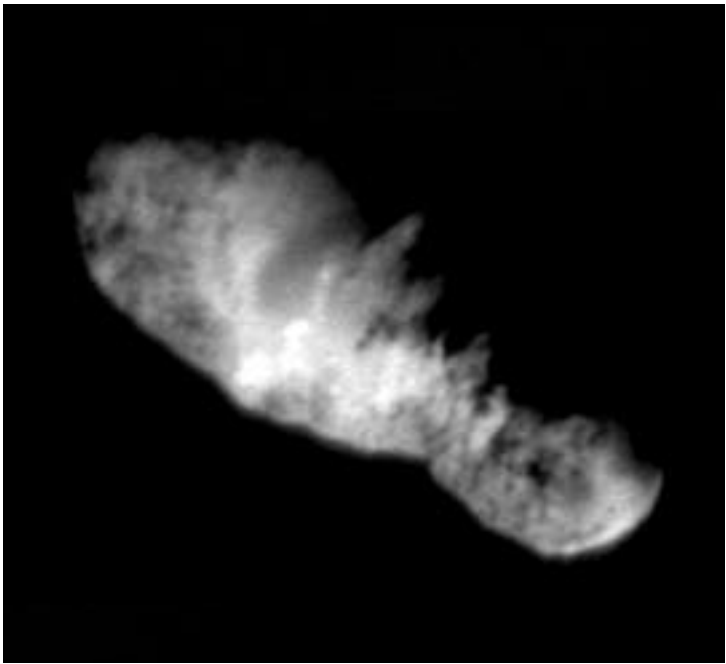
Deep Space 1 snaps closeup comet pictures

By Martha Heil

In this highest resolution view of the icy, rocky nucleus of comet Borrelly, a variety of terrains and surface textures, mountains and fault structures, and darkened material are visible over the nucleus' surface. This was the final image of the comet's nucleus, taken just 160 seconds before Deep Space 1's closest approach to it. This image shows the 8-kilometer-long (5-mile) nucleus about 3,417 kilometers (more than 2,000 miles) away .

The sun is shining from the bottom of the image.

the solar system



I N A RISKY FLYBY, JPL's ailing Deep Space 1 spacecraft has successfully navigated past comet Borrelly, giving researchers the best look ever inside the glowing core of icy dust and gas.

The space probe's Sept. 22 close encounter with Borrelly provided the best-resolution pictures of the comet to date. The already-successful Deep Space 1, without protection from the little-known comet environment, whizzed by just 2,200 kilometers (1,400 miles) from the rocky, icy nucleus of the 10-kilometer-long (more than 6-mile-long) comet. Exceeding the team's expectations of how this elderly spacecraft would perform, the intrepid spacefarer sent back black-and-white photos of the inner core of the comet. It also measured the types of gases and infrared waves around the comet, and how the gases interacted with the solar wind. Thunderous applause and cheering erupted from mission control at JPL as the images were beamed back to Earth. "Deep Space 1 plunged into the heart of comet Borrelly and has lived to tell every detail of its spine-tingling adventure," said Project Manager Dr. Marc Rayman of JPL. "The images are even better than the impressive images of comet Halley taken by Europe's Giotto spacecraft in 1986. "The encounter did not go the way we expected," he said. "In fact, it went perfectly."

Rayman added, "After years of nursing this aged and wounded bird along—a spacecraft not structured to explore comets, a probe that exceeded its objectives more than two years ago—to see it perform its remarkably complex and risky assignment so well was nothing short of incredible. "Deep Space 1 really is 'the little spacecraft that could.,"" Rayman said. "It's mind-boggling and stupendous," said Dr. Laurence Soderblom, the leader of Deep Space 1's imaging team, and a geologist with the U.S. Geological Survey, Flagstaff, Ariz. "These pictures have told us that comet nuclei are far more complex than we ever imagined. They have rugged terrain, smooth rolling plains, deep fractures and very, very dark material." Soderblom said the surprise in the bowling-pin shaped Borrelly was a strong variation of dark and bright spots. Along the belly of the nucleus, he said, each of three prongs are driving a column of dust and gas. The regions of featureless plains from which these "jets" are emanating are the regions of active erosion, he noted. Scientists also realized that Borrelly was different than they expected as Deep Space 1 flew through the coma, the cloud of dust and gas surrounding the nucleus. They had expected that the solar wind would flow symmetrically around the cloud, with the nucleus in the center. Instead, they found that though the solar wind was flowing symmetrically around the cloud, the nucleus was off to one side shooting out a great jet of material forming the cloud that makes the comet visible from Earth. "The formation of the coma is not the simple process we once thought it was," said Dr. David Young of the University of Michigan, leader of the team that made the measurements. "Most of the charged particles are formed to one side, which is not what we expected." Comets are mostly water ice, about 50 percent by mass, said Dr. Donald Yeomans, manager of the Near Earth Objects Program Office. He noted that comets very likely played a role in the evolution of our planet. "Some 65 million years ago, a comet or perhaps an asteroid wiped out the dinosaurs, (so) we may well owe our very existence—and our place on the top of the food chain—to comets." Dr. Robert Nelson of JPL, the Deep Space 1 project scientist, added that in addition to specific data about Borrelly, scientists are now armed with more general information on all comets, which are some of the least changed objects in our solar system. "The study of comets is a gateway to understanding the origins of the solar system," he noted. Launched in October 1998, Deep Space 1 completed its primary mission testing ion propulsion and 11 other advanced, high-risk technologies in September 1999. NASA extended the mission, taking advantage of the ion propulsion and other systems to undertake this chancy but exciting encounter with the comet. For more information about Deep Space 1, including the new Borrelly images, log on to <http://nmp.jpl.nasa.gov/ds1>.

Dumas bids goodbye to Lab colleagues

By Mark Whalen

Deputy Director Larry Dumas, at podium, receives a round of applause from Executive Council members during his retirement ceremony .

JPL said farewell and thanks to one of its most beloved leaders on Sept. 26 with a farewell celebration for retiring Deputy Director Larry Dumas. Dumas, who retires after a career of almost 40 years at the Lab and nine years as deputy director, was feted with gifts and testimonials by members of the Executive Council, as well as by the Advisory Council for Women and the Advisory Council for Minority Affairs. Hundreds of JPLers looked on during the ceremony in the mall. Dumas was joined by his wife, Roberta, son Mark, and daughter Diane, who came in from London for the celebration. Fred McNutt, director of Business Operations and Human Resources, told the crowd that Dumas' "counsel and advice to the non-technical side of the house has been absolutely su-

perb. Larry has never wavered in his support and leadership." Other EC members also thanked and Dumas for his accomplishments and friendship. Interplanetary Network and Information Systems Director Dr. Bill Weber called Dumas "about the most compassionate and caring person you would ever meet. He is a role model for human beings, not just for management." JPL Director Dr. Charles Elachi said he admired Dumas for "not only sharing in JPL's successes, but also taking the responsibility when we've had setbacks. In his calm way, he always made sure that we became a better Lab." Also notable was that Tom May, on behalf of ACMA, gave Dumas much credit for the Lab's increasing its business over the last decade with women- and minority-owned firms from 3 percent to about 18 percent today.



Photo by Enrico Piazza

Gifts from executive council members on behalf of their organizations included a digital camcorder, digital camera, plaques, computer-store gift certificates, dinner at a French restaurant and wine. At a retirement party a day earlier, Dumas was given a new computer on behalf of the Laboratory. Dumas related an appreciation for his JPL career, praising the Lab's history of heroism, that "people have always been willing to not just do their job well, but do whatever it takes to achieve success." "When I came to the Laboratory," he said, "I wanted two things. I wanted to work on something that was worth doing, and to do that in the company of capable and committed people. The Laboratory has never let me down in that regard."

News Briefs



Dr. Randall Friedl



Dr. Loren Lemmerman

Friedl, Lemmerman take new posts
DR. RANDALL FRIEDL and DR. LOREN LEMMERMAN have been named Chief Scientist and Chief Technologist, respectively, for the Earth Science and Technology Directorate.
Friedl, who joined JPL in 1984, has served as a research scientist in the Lab's Atmospheric Chemistry Element since 1997. He is principal investigator of both the JPL/NASA Lower Stratosphere/Upper Troposphere Chemical Kinetics Task and the JPL/NASA Radiation Science Aerosol Task. He has authored or co-authored more than 30 journal articles based on his research.
Friedl earned a Ph.D. in chemistry from Harvard University in 1984.
Lemmerman joined JPL in 1990 and has served in numerous management and technical positions on Lab, most recently as manager of the Earth Science Instrument and Technology Office. He previously managed the Modular Containerless Processing Facility for the international space station.
Lemmerman earned a Ph.D in aerospace engineering from the University of Texas, Arlington, in 1976.

Mars Odyssey corrects path
JPL's 2001 Mars Odyssey spacecraft has performed its third trajectory correction maneuver to fine-tune its flight path for arrival at Mars next month.
On Sept. 16, Odyssey fired its small thrusters for 12 seconds, which changed the speed and direction of the spacecraft by .45 meters per second (1 mph). Odyssey will arrive at Mars at 7:30 p.m. Pacific time Oct. 23.
"This was the first maneuver to target our final aim point for Mars orbit insertion. Early indications are that the maneuver was right on the money," said David A. Spencer, Odyssey's mis-

sion manager at JPL.
On Sept. 6, the flight team performed a checkout of the spacecraft telecommunications subsystem for Mars orbit insertion. During the checkout, the spacecraft was turned to the planned orientation for the large burn, and the radio signal from the spacecraft was monitored. All systems performed as expected.
Galex ships out for bus integration
The JPL-developed Galaxy Evolution Explorer has completed environmental testing at JPL and has been shipped to industrial partner Orbital Sciences Corp. in Germantown, Md.
"We are in the process of integrating the instrument to the spacecraft bus at Orbital, and will be performing a full set of satellite-level tests," said Project Manager DR. JIM FANSON.
The telescope, which is scheduled for launch in spring 2002, will map the history of star formation in the universe, going 80 percent of the way back to the Big Bang.
Galex will survey the sky using the ultraviolet part of the light spectrum, and will observe hundreds of thousands of galaxies.

Correction

A News Brief article in the Sept. 14 issue of Universe requires clarification. In the brief about the opening of the Wellness Place, it was mentioned that as part of the Employer of Choice initiative, all initial classes (yoga, aerobics, tai chi) at the facility will be paid for with Caltech award fee money. The article did not note that the construction of the Wellness Place was also funded through Caltech award fee money.

Labwide cleanup effort lauded

By Mark Whalen



Al Brejcha, manager of the Office of Safety and Mission Success Operations, discusses the new Perpetual Achievement Award during the Sept. 5 Labwide Cleanup Award luncheon.

Remember JPL's property inventory earlier this year? It turns out that the audit was about a lot more than showing JPLers the proper way to store property and flight hardware.
The successful Labwide cleanup effort was led by a team representing the Occupational Safety Office, Property and Acquisitions, Logistics, Facilities, the Environmental Affairs Office and the Flight Hardware Logistics Program. The combined audits covered the entire Lab, including roofs, maintenance rooms, basements, trailers, containers, research laboratories, offices and building perimeters.
Pamela Brown of the Occupational Safety Office noted that the entire effort was prompted by an audit of JPL conducted last year by the Defense Contract Management Agency, which is responsible for contract administration services for the Department of Defense and other federal agencies. That audit's primary focus was to review the JPL safety program as it pertains to government-furnished property.
Brown oversaw the efforts of the team and coordinated the support of 27 representatives from directorates Lab wide. As a result of the combined audits and cleanup effort, a new JPL Inspection Program has been created, which will call for a single annual inspection to cover all of the aforementioned areas.
"The hope is that JPL projects and programs will be holistic in their planning, including areas such as property storage and safety considerations."
At a Sept. 5 ceremony to honor the efforts of those involved in the cleanup, JPL Director Dr. Charles Elachi extended his appreciation "for your hard work in facilitating a changing attitude toward safe housekeeping and the direct link to professionalism and safety in the workplace."
"Safety, organization of our work, housekeeping, property accountability and security is how we demonstrate good care, good care for our employees and missions, and good stewardship of the governments' assets," Elachi said.
Al Brejcha, manager of the Office of Safety and Mission Success Operations, noted that in recognition of the Lab's efforts to create and maintain a better-organized and safer workplace, JPL has created a new category of recognition, called the "Perpetual Achievement Award." The achievement award trophy will be engraved with the winning division and division manager's name and will be on display in the lobby of building 180. This award will be given beginning in fiscal year 2002 to the Lab division that achieves the best scores in the following areas:
SAFETY
• Recordable injuries per 100 employees
• Lost-time injuries per 100 employees
• First-aid per 100 employees
PROPERTY
• Loss reports per 100 employees
• Completion of asset inventory on schedule
• Completion of annual walkthrough inspections on schedule
• Timely reply to annual storage retention report
ENVIRONMENTAL
• Percent of managers/supervisors completing one- or two-hour "Am I meeting My JPL Environmental Responsibilities?" classes
• Percent of employees completing required hazardous waste generator training in divisions using chemicals

Special Events Calendar

Ongoing Support Groups
Alcoholics Anonymous—Meetings are available. Call the Employee Assistance Program at ext. 4-3680 for time and location.

Codependents Anonymous—Meeting at noon every Wednesday. Call Occupational Health Services at ext. 4-3319.

Gay, Lesbian and Bisexual Support Group—Meets the first and third Fridays of the month at noon in Building 125-133. Call the Employee Assistance Program at ext. 4-3680 or Randy Herrera at ext. 3-0664.

Parent Support Group—Meets the third Thursday of the month at noon. For location, call the Employee Assistance Program at ext. 4-3680.

Senior Caregivers Support Group—Meets the first Tuesday of the month at noon. For location, call the Employee Assistance Program at ext. 4-3680.

Monday, October 1
NASA 2001 Software of the Year Award—JPL Chief Information Officer Tom Renfrow will present an Honorable Mention Award to Distributed Object Visualization Environment (DOVE) team members Lee Elson, David Hanks, Patrick Ko and Hari Nair at 3 p.m. in Building 183-328.

Tuesday, October 2
JPL Gamers Club—Meeting at noon in Building 301-227.

JPL Genealogy Club—Meeting at noon in Building 301-271.

Poetry Reading—Renowned author and poet Robert Bly will appear at 8 p.m. in Caltech's Beckman Auditorium. Presented in collaboration with the Art Center College of Design. Admission is free. Call (626) 395-4652.

Wednesday, October 3
Associated Retirees of JPL/Caltech—Meeting at 10 a.m. at the Caltech Credit Union, 528 Foothill Blvd., La Cañada.

"Understanding and Designing Software Processes"—Dr. Walt Scacchi of UC Irvine will speak at noon in conference room 167. Presented by JPL's Center for Space Mission Information and Software Systems.

Thursday, October 4
JPL Gun Club—Meeting at noon in Building 183-328.

Friday October 5
Caltech Women's Club—A "Welcoming Coffee" will be held for new members of the Caltech/JPL community from 9 to 10:30 a.m. at 1227 Arden Road, Pasadena, near the Caltech campus. Call Tema Halpern, (818) 952-6214.

Saturday, October 6
"Planning for Your Child's Educational Future"—David Levy, Caltech's assistant dean and director of financial aid, and Catherine Thomas, associate dean of admissions and financial aid at USC, will speak at 10 a.m. at Verdugo Hills Hospital, 1812 Verdugo Blvd., Glendale. Free admission. For more information, call the JPL/Caltech Child Educational Center at ext. 4-3418.

Sunday, October 7
Chamber Music—Pianist Dorian Ho will perform at 3:30 p.m. in Caltech's Dabney Lounge. Admission is free. Call (626) 395-4652.

Tuesday, October 9
Caltech Management Association—JPL Director Dr. Charles Elachi will present "Managing the JPL Vision" at the Athenaeum. Reception is at 6 p.m., with dinner at 7 and program at 8:15. Cost: \$40 for CMA members, \$45 for members' guests, and \$50 non-members (includes CMA Membership). Open to CMA members and guests only. Call Alice Tangney at ext. 4-7702 or Janester Short at (626) 395-6625.

JPL Stamp Club—Meeting at noon in Building 183-328.

Wednesday, October 10
Caltech Women's Club—The annual Fall Gathering will be held from 11:30 a.m. to 1:30 p.m. at the President's House, 415 S. Hill Ave., Pasadena. The event is free, but there is a charge of \$12.50 for lunch. Make checks payable to the club and send to Patti Croke, 3271 Pagent Court, Thousand Oaks, CA 91360. Dead- line for lunch reservations is Oct. 5. Contact Mary Ann Jenkins, (626) 396-8233 or maryann.jenkins@caltech.edu.

Investment Advice—Fidelity will hold individual counseling sessions. For an appointment, call (800) 642-7131.

JPL Amateur Radio Club—Meeting at noon in Building 238-543.

JPL Toastmasters Club—Meeting at 5 p.m. in the Building 167 conference room. Guests welcome. Call Joy Hodges at ext. 4-7041.

Mars Lecture—Dr. Arden Albee will discuss Mars Global Surveyor at 8 p.m. in Caltech's Beckman Auditorium. Admission is free. Call (626) 395-4652.

Friday, October 12
Book Signing—Robert Kraemer, author of "Beyond the Moon: A Golden Age of Planetary Exploration 1971-1978," will appear at 8 p.m. at Barnes and Noble, 111 W. Colorado Blvd., Pasadena.

Travel Film—"The Best of Portugal" will be presented at 8 p.m. in Caltech's Beckman Auditorium. Tickets are \$9 and \$7. Call (626) 395-4652.

SECURITY/FIRE DEPARTMENT
• Percent of notices of non-compliance in common areas per 100 employees by division
The following individuals were recognized during the Lab-wide Cleanup Award and Recognition Ceremony, held September 5, 2001, for outstanding performance:
Audit Team: Ruth LeBlanc (team lead), Occupational Safety Office; John Beedy and Mike Nieto, Logistics and Maintenance and Services Section; Douglas Hall, Facilities, Maintenance and Operations Section; Henry Koyamatsu, Environmental Affairs Office; Ken Van Amringe, Flight Hardware Logistics Program; and Jeanne Long, Occupational Safety Office, administrative support.
Also recognized were the following division representatives who made significant contribution to the success of the cleanup effort:
Division 1X: Stephen Bridges and Kent Frewing; Division 2X: Della Borland, Sandra Brady, Chuck Buril, Cindy Coryell, Ricardo Coto-Cruz, Taenha Goodrich, Mary Kunstler, Foster McLean, Dora Montano and Karen Phillips; Division 3X: Stan Eisenbaum, Holly Hargis, Robert Ibaven, Geoffrey James, Don Lafontan, James Oyama, Dean Pruitt, Jack Schwartz, and William Tibbits; Division 4X: Donna Bonorris, Suzan Elliott, and Carmen Vetter; Division 5X: Antonio Alfred, and Gary McCutcheon; Division 6X: Page Garcia; Division 9X: Cheryl De Gyurky, and Rodney Rohla.

AS EVENTS UNFOLDED IN NEW YORK, Washington DC, and the Pennsylvania countryside, JPLers were going about their business in various parts of the country. On Sept. 11, 215 JPLers from all walks of the Lab initially found themselves stranded, with all aircraft grounded, rental car lots empty, and train tickets sold out. These are the stories Universe received — we know there are many more — of JPLers and others, pulling together and helping each other get back home to families.

WE HEARD THE NEWS about the terrorist attacks while attending a Discovery mission site visit in Dulles, Va. near Washington, D.C. [Editor's note: the proposed Discovery mission is Dawn, which would launch in 2005 to orbit two of the solar system's largest asteroids.] Shortly thereafter, the meeting was cancelled and we learned that the airports had been closed. A group of 10 JPLers and three others decided to drive cross-country in four rental cars, driving straight through to minimize time on the road and to get back to our families as soon as possible.

Gregg Vane of JPL bought 2-way radios for each car so we could stay in contact, and eventually he served as a conduit for news from JPL using his cell phone and radio. We used the radios to chatter back and forth throughout our 47-hour-long trip to Barstow, Calif., where we parted our separate ways. The radios were invaluable for keeping us together and alerting the caravan that it was time for a rest stop.

At the end of our trek, as we lingered over lunch in Barstow, we reflected on the events of the past two days and tried to plan our course of recovery to get the proposal effort back on track. By the end of the trip, camaraderie had developed that will far outlast any one proposal or mission. I am pleased to refer to each and every one of my fellow travelers as "friends."

—Bobby Williams
Supervisor, Outer Planets Navigation Group

MY FIRST REACTION WAS SHOCK and horror; the next was, "What's going to happen next?" followed by "I've got to get home to my family" (husband and children ages 3 and 5). I knew that air travel would not resume for some days, but an even more compelling reason to drive home was to engage in an activity that had a goal, required attention and yielded progress. In fact, as the Dawn team met back at the hotel and it became clear that most of us wanted to go, we recast the trip into our first teambuilding exercise—a chance to get to know each other better. Although we listened incessantly to the radio and kept up with events, it was a great relief not to be glued to the television viewing the horrific images that we had seen before leaving.

The most remarkable thing about the journey was the contrast between the devastation and grief resulting from the terrorist attacks, and the incredible natural beauty of the country. Driving through the desert brought a sense of peace and healing that tempered the tragedy.

Needless to say, our group of 13 stood out at the various restaurants and truck stops that we visited. Sarah Gavit (project manager) made a special effort to chat with waitresses and convenience store personnel explaining who we were and what the Dawn mission was. We met a lot of well-wishers and hopefully impressed upon many that folks in the space business are pretty ordinary people!

—Dr. Carol Raymond
Research Scientist and Deputy Principal Investigator on Dawn

I WAS VISITING MY FAMILY in New York City (Sept. 6–10). My flight from NYC was delayed for 2.5 hours due to heavy rain and thunder. I was in the air when the attacks occurred. Our plane was directed to land at the closest airport—in Wichita, Kansas. I was stranded, without a way home, no hotel

(initially), no transportation, and a carryon full of dirty laundry.

Within one day, the "JPL underground" began to connect. I first got a call from Jeanne Holm [who ended up taking Amtrak home]. Next came the calls from Leslie Lowes, Ellis Miner and Shari Asplund, who were going to drive from Chicago to L.A., and wondered if I needed a ride. They kept calling all along their route to see if my flight would leave before they had to commit to a "left turn" to Wichita. [Editor's note: Asplund was picked up in Omaha by Lowes and Miner.] I thought I was going to fly on Thursday and as such told them to press on without me. I ended up renting a van with five strangers (fellow TWA passengers) and drove 24 hours straight to make it to the Lab.

The bottom line—JPL is a family. We may complain sometimes. But we're there for each other. We take care of each other's kids, we help out JPL families in distress and we grieve together for the loss of those in New York City, Washington D.C. and Pittsburgh.

It's sad that it takes such a loss for individuals to appreciate how much we truly have.

—Randii Wessen
Mars Program Telecommunications and Mission Systems Manager

ON SEPT. 11, I LANDED AT DULLES airport around 7 a.m., and drove into Washington DC to attend a meeting. We stepped out of the meeting to hear the news, and several Department of Defense employees immediately left. The first few hours were full of uncertainty—how many people were injured, would there be another attack, and were all planes accounted for? Washington became a ghost town—everything shut down and the only vehicles on the streets were police cars, fire trucks and ambulances. One of the most unsettling images I will carry is the sight of the Pentagon burning with the Capitol in the distance.

I tried to hook up with some other JPLers stranded across the country, coordinating through my husband, Ron, and Alice Wessen, whose husband, Randii, was stranded in Wichita. I finally drove to Pittsburgh, where Amtrak had a seat available at midnight Wednesday. Routing through Chicago brought me home four days later. The train was overcrowded and ran out of blankets and even food, at times, but each hour brought me one hour closer to holding my children.

As we crossed the cornfields of Kansas, I sat next to a woman who had been at the World Trade Center when the planes hit. For two hours she spoke of what she had seen and of the haunting memories of what she had witnessed. All the passengers helped each other, and the hotel and car companies, in Washington and L.A., did their best to help get people home.

I am grateful for all the friends I have at JPL and for their support and good wishes during my travels back home.

—Jeanne Holm
Chief Knowledge Architect, ICIS

MAYBE OUR SMALL GROUP was a representative microcosm of the country: In the end, it was a joyful trip, although for very different reasons than any other such journeys I had made. Despite the deep sadness we all felt for those who perished in the desperate acts on Sept. 11, I felt joy in seeing the positive effects on those around us, people coming together and treating each other with respect. I also believe that the events have forced us all to look at life differently now, to reassess what is truly important, such as time spent with family and friends, and time spent doing work that lifts the human spirit, which we all do every day at our jobs at JPL. I hope that out of the horrors of Sept. 11, the good will endure and grow.

—Gregg Vane
Manager, Programs of Opportunity (620)

Below: From left, Jon Sims, Carol Raymond, Gregg Vane and Jim Kaufman emerge from shopping at a truck stop near the beginning of their cross-country drive. Bottom: Near the end of their journey, the whole group gathers outside a Barstow-area restaurant. From left are Alex Konopliv, Sims, Raymond, George Cancro, Joe Wise, Bobby Williams, Ed Jorgensen, Sarah Gavit, Chris Russell, Kaufman, Jim Kenny and Vane.

THE LONG WAY HOME



Photos courtesy of Sarah Gavit

A few words about Universe advertising

- Universe is not responsible for the quality of merchandise sold or claims made through its ads.
- Ads are for the exclusive use of JPL and Caltech employees, contractors and retirees, and their immediate families.
- Please provide your full name, as well as your home phone number and work extension. If applicable, indicate Caltech (campus) employee, retiree, etc.
- No more than two ads of up to 60 words each will be published for each advertiser.
- Only home phone numbers and e-mail addresses are to be used for

- items for sale or rent and in the Wanted and Free sections; work extensions may be published for Lost and Found and carpool/vanpool information only.
- Ads are accepted only via e-mail (*universe@jpl.nasa.gov*) or on Universe ad cards, available at the ERC and the Universe office, at 186-116. Ad cards will be mailed to any JPL office or facility on request.
- No faxes, handwritten ads or photocopies of ad cards are accepted, with the exception of submissions for the Letters column. Also, ads are not taken over the telephone.
- There are still many old ad cards

- floating around with the wrong deadline on them. Unless otherwise noted in Universe, the actual deadline if the Monday following publication, at 2 p.m., for the next issue. For example, the ad deadline for the Oct. 12 Universe is Monday, Oct. 1.
- We ask that readers not submit ads for “work sought,” such as babysitting or housekeeping services or other types of private businesses. Also not acceptable are ads for franchises, dealerships, distributorships, etc., and products sold through those means.
- Ads for weapons, ammunition, etc. are not accepted.

- Real estate ads (for rent and sale) must be signed on the back of ads (non-discrimination clause). E-mail ads will be returned to advertisers with this clause included for your “electronic” signature.
 - Those placing housing and vehicle ads should be listed as an owner on the ownership documents.
 - Prices listed on rental ads are shown per month unless otherwise specified.
 - Telephone numbers on ads are in the 818 area code unless otherwise specified.
- Thank you very much for your compliance and understanding.

DailyPlanet

Online for the JPL community

Classified ads will be available the day before Universe is published, at

http://dailyplanet

JPL's online news source

View this and previous issues of Universe online
<http://universe.jpl.nasa.gov>



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Notice to Advertisers

Advertising is available for JPL and Caltech employees, contractors and retirees and their families. No more than two ads of up to 60 words each will be published for each advertiser . Items may be combined within one submission. Ads must be submitted on ad cards, available at the ERC and the Universe office, Bldg. 186-118 , or via e-mail to universe@jpl.nasa.gov . Ads are due at 2 p.m. on the Monday after publication for the following issue.

All housing and vehicle advertisements require that the qualifying person(s) placing the ad be listed as an owner on the ownership documents.

Passings

MARY RACKUS, 83, a retired senior administrative assistant in Section 655, died July 23. Rackus worked at the Lab from 1966–79. She is survived by her husband, Richard. Services were private.

ROBERT BILLINGS, 81, a retired electrical engineer in Section 377, died of Parkinson's disease Aug. 20 at a nursing home. Billings, who tracked JPL missions through the Deep Space Network, joined the Lab in 1970, retired as a JPL employee in 1981, and continued to work for JPL as a contractor for AlliedSignal through 1986. He is survived by his wife, Leslie, daughter Betsy Yochelson and granddaughter Shilo. Billings’ family requests that donations in his name be made to the Parkinson’s Disease Association, 10850 Wilshire Blvd., Los Angeles, CA 90024.

Retirees

The following JPL employees retired in September: Richard Grumm, 39 years, Section 323; William Coughlin, 34 years, Section 625; Allan Petrich, 32 years, Section 642; John Carraway, 31 years, Section 402; Robert Weiss, 28 years, Section 346; Sondra Falcone, 22 years, Section 331; Barbara Kotulla, 17 years, Section 247; Shirley Giuglio, 16 years, Section 388; Edward Bohanan, 11 years, Section 661.

Letters

My family would like to thank my friends and co-workers in Section 2723 for their support after the recent passing of my father. His wife of 56 years is enjoying the beautiful plant that was sent by the ERC.

Andy Watkins

Classifieds

For Sale

ACTIVITY GYM, Fisher Price Lights & Sounds, plays 8 tunes w/different light patterns, 2 modes, play continually or activate by tapping on any of the 3 hanging toys, \$15. 952-0328. BABY ITEM, Boppy Pillow, navy blue, with animal print, \$8. 952-0328. BBO, Grillmaster 540, with 9" side burner and cutting board on other side, grill areas are 21.5" x 15" and 21.5" x 12", includes \$35 outdoor grill, cover, plus two \$40 propane tanks all on a wheeled base, exc. cond., \$149/obo. 887-2835. BEDROOM SET, 7-piece, Mahogany, full size, \$350; SOFA BED, full size, \$250; BAR STOOLS, three, \$15/each, ENTRY DOOR, with leaded glass & 2 panels, \$75; FISH TANK, 60 gallon, \$75. 790-7982. BEDROOM SET, girl's, pink and white, incl. 1 bunk bed, 77 1/2" x 42 3/4", with a ladder, 4 drawers, storage com-ponent under the lower bed, a matching 5-drawer dresser, 30" x 17 1/2" x 44 1/4", matching 4-drawer desk, 48" x 18", and a hutch, 48" x 9 3/4" x 40", matching desk chair, 2 Simmons twin matt-r., \$500/obo. 790-9772, eves. BEDROOM SET, girl's, 7 piece, complete, light yellow, good cond., \$400/obo. 368-6303. BEDROOM SET, child's, stacking bunk beds, desk, chair, small chest of drawers, all in matching solid pine, natural and primary colors, good cond., whole set \$450/obo. joshua_carver@hotmail.com, 626/355-4550. BICYCLE, Schwinn 10 sp., road bike, \$50. 626/793-3082. BOOKCASE, 5 shelves, 68 1/2 H x 27 W x 9 3/4

D, white, exc. cond., \$50. 626/793-3561. CAMCORDER, digital, mimi DV, Sharp VL-DC1U, w/extra battery, 4" color screen, 30x digital zoom, digital image stabilization, hi-fi stereo, exc. cond., \$395. 626/578-0357. CAR SEAT, Gerry, with shield, excellent cond., \$35; BABY GYM, \$5; EXERCISER, Ab Rocker w/video, excellent cond., \$10. 626/850-4378. COMPUTER COMPENENTS, reusable, key-board, \$5; VIDEO CARD, 8MB ATI, \$8; SOUND CARD, Yamaha, \$5; PC CASE, with floppy and power supply, \$15; INSTALLATION CDs. 626/840-0955, leave msg. COOLERS, Coleman, large, good cond., \$15/ea; BICYCLE, 4, children's, \$15/ea; SHOVELS, compact, squarepoint, \$5/ea; REFRIGERATOR, GE, 17 years old, large, side-by-side, \$100; FIREPLACE SCREENS, black, + accessories, \$50. 626/357-8210. COUCH, soft & comfy, khaki green, vg cond., \$250. 626/286-2110. ENTERTAINMENT CENTER, holds 27" TV, shelf for VCR, 3 add'l shelves, 3 drawers + cabinet w/2 shelves, vg cond., \$50. 362-7750. EXERCISE EQUIPMENT, PowerTrainer, bench arrangement, comes with how-to-use video, rarely used, \$50. 362-7750. EXERCISE MACHINE, climber, like new, \$250/obo. 626/793-3082. FURNITURE: leather sofa and loveseat, ivory color, \$850; dinette set w/4 chairs & 2 barstools, \$90; dresser w/6 drawers, \$20. 626/793-3082. GATE, wrought iron, painted black, 4' wide, 7' tall, curved top, with 9 vertical bars spaced 4", comes with standard lock, hinge bar and locking bar, \$80/obo. 626/791-6101. HEPA FILTER, Honeywell, for a 16 x 20 area, new filters included, barely used, \$50. 626/798-6248. JACKET, men's brown leather, "Members Only", size 38, ribbed waist and sleeve cuff, brand new, never worn, \$50; TRENCH COAT, women's belted black leather, size 12/14, zip-out insulated lining, like new, worn very few times, \$75; RAINCOAT, women's powder blue cotton/polyester, belted, size 12, zip-out insulated lining, nearly new, seldom worn, \$35. 780-0470. LASER POINTER, brand new, 5 diff. pattern heads, key chain, hard case, 3 batteries, great in presentations, fun for kids and pets, perfect as a gift, \$5. 661/257-4350. LUGGAGE, Jordache 4-piece tapestry set, includes Pullman with wheels, 2 carpet-bag styles of different sizes, and carry-on, exc. cond., like new, \$100/obo. 626/791-7645. MONITOR, ViewSonic, 17 EA, 17 inch CRT, built-in stereo speakers, works with PC or Mac, cables included, very good cond., \$100. 626/577-0068. MOVING SALE: pine bookcase, pine dresser, exc. cond.; wood utility cart, exc. cond.; stuffed fabric recliner chair, vg cond; futon w/matt-r., full, wood platform; folding table, approx. 2' x 4'; floor lamp; 2 "southwest" rugs, gd. cond., approx. 6' x 8'; misc. free items, shoes, magazines, prices negotiable, super flexible. 626/577-5133, lv. msg., fohat7@earthlink.net. OVEN, Kenmore, retro 1950, works, good cond., white. 661/718-8483. PHOTO ALBUMS, new condition, bought for \$13, sell for \$5. 626/792-8272. PIANO, Clavinova digital, Yamaha CLP 411, 3 yrs. old, exc. cond., black, \$1,600/obo. 626/475-5790. PINBALL MACHINE, from '70s, Gottlieb's King Rock, 4-player, gd. shape, nds repairs, \$575; SNOW SKI RACK w/lock (lg. car), \$75; TABLE, kitch. dinette, 4 chairs, maple top, white legs, \$125; BUNK BED, black metal frame, twin on top, full on bottom, no matt-r., \$125; BINOCULARS, Tasco, new in box, 20 x 50 mm w/zoom, leather case, \$150; TV, Sony Watchman 2" B&W, UHF/VHF, 4-way pwr., new in box, \$85; TEST METER, Triplett VOM type, hand size, new in box, \$39; all items are obo. 909/941-2897. PLANTS, two purple Wisteria trees, in 17" clay pots, \$25/ea./obo; RUBBER TREE in 17" clay pot, \$25/obo. 626/791-6101. POWER WHEELCHAIR, Everest & Jennings, exc. cond., easy-to-use joystick, foot rest, removable battery for travel, \$2,500/obo. 626/798-0033. POWER WHEELCHAIR, Jazzy, slightly used, only used in the home for 6 months, have owner's manual and warranty information, \$3,800. 661/259-8130. PRINTER, Tektronix Phaser 200i, prints great, network capable, will include 200 sheets perf. paper, 5 wax rools, 2 color, 2 black, 1 clearcoat, \$150/obo. 760-1085. RADIOS, 2-way, Motorola T289, new in orig. pkg., 14 freq., 38 interference codes, 2-mile range, channel scan, VOX, great for malls and theme parks, retails for \$80/ea., sell for \$60/ea., \$20 rebate avail. 626/308-2163. REMODEL SALE: stove, Okeefe & Merritt, white, 4 burner, griddle, broiler, oven, new gas lines & valves, 1950s, \$750/obo; A/C, Hampton Bay 15" W x 20.5" H, window 10K BTU/hr, \$100/obo. subert@earthlink.net.

REFRIGERATOR, Frigidaire, 22 cu. ft., side-by-side, 3 doors, avocado color, 1974 model, everything works, clean, no dings, \$195. 248-6551, evenings. SEWING MACHINE, white metal, wood case, ~1940s, works, \$150/obo. 626/287-9433. TABLE, coffee, shabby chic, painted antique white, \$150. 661/259-5915. TABLE, dining, golden-oak, 44" round claw-foot with 3 leaves and 5 chairs, exc. condition. \$875; SEWING MACHINE, Kenmore in wood cabinet, lots of features, \$150 obo; CLOTHES: boy's slacks, 10 & 12 reg. blue blazer, ski clothes, most like new. 952-8455. TABLES, coffee, fair cond., + 2 end tables, good cond., cherrywood, \$50/all; dining room, 4 chairs, cherry wood/black combo, \$100; REFRIGERATOR, GE, white, 15 yrs old, \$100; SOFA/SLEEPER, makes into queen bed, abstract stripe design in black, blue and mauve, good cond., \$300. 626/357-8210. WETSUIT, fits med. to lg., used once, gd for surf, boogie board, beginning triathlons; bought \$179, sell for \$65/obo. 626/792-8272.

Vehicles/Accessories

'95 CHEVROLET Lumina, 4 dr., blue, 68K mi., exc. cond., \$4,850. 248-8413, evenings only. '01 CHRYSLER PT Cruiser, 5K mi., like-new cond., deep cranberry pearl coat, 28G touring package, leather, air, auto, 16 " chrome wheels, moonroof, side air bags, CD, halogen quad lights, power seat, speed control, deep tint windows, compass & temp, power heated mirrors, fog lamps, storage drawer, EPA rated 20/25, \$23,700/obo, serious buyers only please. 249-6786. '98 FORD Explorer Sport, red, perfect cond, 2wd, v6, gray cloth int, non smoker, CD, a/c, pwr steer, windows, driver seat, \$22,500 obo, all papers. 626/287-9433 '93 FORD Taurus LX, 81K mi., new trans, green w/gray leather, temp. ctrl., pwr. windows/locks, keyless entry, more, very clean, \$3,825. 626/443-2003. '93 HONDA Accord EX, good cond., 92,730 mi., black leather interior, sunroof, regular service, \$6,900/obo. 243-6693. '92 HONDA Accord LX, exc. cond., 5 spd., 171K mi., 4 dr., 1 owner, comp. serv. records, a/c, am/fm/cass., cruise control, pwr. windows/doors, driver side airbag, new tires/brakes/clutch/ belts/hoses/radiator, \$5,200. 626/963-6712. '90 HONDA Accord LX, 4 dr., 5 spd., 1 owner, vg cond., w/maint. recs., 74K mi., a/c, am/fm/cass., cruise control, pwr. window/locks, new tires, \$5,500. 626/574-5733. '94 MAZDA 626 EX, black w/gray leather, 6 CD changer, 76,000 mi., 6 cyl. 458-8819. '90 MAZDA RX-7 convertible, 5 spd. rotary, 138K mi., 2 dr., white w/black power top, blue leather, a/c, CD, fast and fun, \$5,500. 841-4849 or hje@rocketship.com. '90 NISSAN 240SX SE Fastback, red, 5 spd., flip-up/removable sunroof, pwr steering, tilt wheel, cruise, AM/FM stereo, single owner, well-maintained, all records, runs & handles great, gd. cond., \$3,600/obo. 323/ 467-4742. '96 SAAB 900SE Turbo convertible, red/ black, great cond., 5 spd, leather, CD changer, low 41K miles, \$19,000/obo. 249-1749. SEATS for Jeep Laredo, front and back, factory gray, \$65. 626/359-7666. '92 TOYOTA Tacoma, automatic, under warr., a/c, 26K mi., bedliner, 1 owner, comp. dealer service records, \$9,535. 626/286-5149. '91 TOYOTA 4Runner SR-5, 4 x 4, a/c, power windows/locks, tilt wheel, am/fm/cass., moon roof, privacy glass, running board, towing package, alloy wheels, wide tires, \$6,400. 909/861-8998. '86 TOYOTA short-bed, 4 x 4, 138K mi., Brama shell, a/c, 5 spd., stereo, Smitty built bumpers, tow pkg, needs body work, runs great, \$2,500. 790-1893, leave msg. '84 TOYOTA Cressida, low miles, loaded, leather, full power, sunroof, 1 owner, runs perfect, \$2,200. 626/359-7666. WHEELS, four, "Baja", alum. alloy, 15 x 8, 6 lug, fits Toyota, Nissan 4 x 4, mini pickups, \$100. 909/624-7392.

Wanted

ANTIQUE LINENS, white on white, hand embroidered, preferably monogrammed (any monogram), must be in exc. cond. 980-1638. HOUSE TO RENT, 2 + bedroom, near Lab or campus, family of 4, 2 cats, 1 pocket-sized dog, very quiet neighbor preferred. 626/397-7224, Charlie. SPACE INFORMATION/memorabilia from U.S. & other countries, past & present. 790-8523, Marc Rayman. STORAGE SPACE for a truck, will pay. 626/798-6248. VOLLEYBALL PLAYERS, coed, no beginners please, Tues. nights 8-10:00 at Eagle Rock High School, \$3/nt. 956-1744, Barbara.

Free

DOG: young female blk lab mix rescued from

humane society (was her last day); fully trained, pref to be the only dog, has 1 floppy ear, short hair, med. build, healthy, all shots, spayed, very affectionate. 626/335-5518.

For Rent

ALTADENA, 2 bd., 1.75 ba., office, detached play/workout room, a/c, cent. heat, washer/ dryer hookups, fireplace, newly refinished hard-wood floors, new paint inside/out, new linoleum, new stove, nice area nr Altadena Golf Course, no pets, non-smokers, \$1,800, gardener & water incl.. 626/296-2659. ALTADENA house, 2 bd., 2 mi./JPL, hardwood floors, wood-burning fireplace, remodeled kitchen and bathroom, \$1,400. 626/791-7081. ALTADENA house to share, 2 bd., den, washer/dryer, garage, fenced yd, cute, 1 mile from JPL, \$500, plus utilities. 626/797-0727. GLENDALE, Verdugo Woodlands, 1-rm garden cottage, brick fireplace, furnished, full bath, washer/dryer, utilities included, no smoking or drugs, no pets, great for JPL employees who need Mon.-Fri. residence, \$625. 244-3343. LA CANADA/FLINTRIDGE, separate small room, w/bathroom, a/c, partially furnished, gated separate entrance, temporary OK, close to JPL, very private, \$650. 790-1893, leave msg. MONTEREY HILLS, 2 bd., 2 ba., townhouse, 2-car att. garage, a/c, washer/dryer, dish-washer, refrig., microwave, appliances 1 yr. old, patio w/view, skylights, fireplace, pool, spa, water pd., end unit, very clean, 1,400 sq. ft., well-maint. complex, 58 units, 15 min. to JPL & dwntwn. L.A., \$1,500. 626/794-1716. PASADENA, 2 bd., 1.5 ba., townhome style apartment, a/c, parking, patio, laundry facilities, no pets, fully furnished, \$1,150 + util.; PASADENA, apartment to share, fully furn., a/c, parking, patio, laundry facilities, no pets, near Caltech, \$575 + util. 626/351-9641. PASADENA apt., 1 bd., 1 ba., unfurn., a/c, parking, newly refurbished, close to PCC and Caltech, \$850 plus util. 626/351-9641. PASADENA, 1 bd., 1 ba., in partially furn. 2 bd., 2 ba. apartment, near Caltech & PCC, subterranean parking, fireplace, balcony, recently remodeled, a/c, washer/dryer in unit, \$650-\$675. 626/564-9511. SOUTH PASADENA, studio apt, 1718 Huntington Dr., between Marengo and Milan Sts, fully furnished, utilities paid, car space, laundry, no pets, non-smoker, \$750. 626/792-9053, Marilyn or Ray. SYLMAR, top of mtn., spacious 2,711 sq. ft. new home, 4 + 3, buy option, gated community nr parks, million \$ view, credit of \$10,000 after 1-yr. lease, \$2,395. 626/584-6526, Fred.

Real Estate

SUNLAND, 5 bd., 3 ba., custom-built home with den/office, fireplace in liv. rm, sep. craft/ laundry rm, updated kitch. w/built-ins, copper plumbing, ceiling fans, 3 phone lines, 2,600 sq. ft., pool/spa, and 2-car detached garage on oversize lot, close to schools, mtn. views, 15 minutes to JPL, \$352,900. 949-5761, agent.

Vacation Rentals

BIG BEAR LAKEFRONT, luxury townhome, 2 decks, tennis, pool/spa, beautiful master bd. suite, sleeps 6. 949/786-6548. CAMBRIA, ocean front house, sleeps up to 4, excellent view. 248-8853. HAWAII, Kona, ocean front on Keauhou Bay, house & guest house comfortably sleep 6, 3 bd., 2 ba., rustic, relaxing and beautiful, swimming, snorkeling, fishing, spectacular vw, near restaur., golf, other attractions. 626/584-9632. HAWAII, Maui condo, NW coast, on beach w/ocean view, 25 ft. fr. surf, 1 bd. w/loft, compl. furn., phone, color TV, VCR, micro-wave, d/w, pool, priv. lanai, slps. 4, 4/15-12/14 \$105/nite/2, 12/15-4/14 \$120/nite/2, \$15/nite/add'l person. 949/348-8047. MAMMOTH, Chamonix condo, at lifts 7, 8, 16, 17, walk to Warming Hut, 2 bd., 2 full ba., sleeps 6, newly refurbished, fully equipped elec. kitchen, w/microwave & extras, f/p and wood, color TV, cable, FM stereo, VCR, pool & sun areas, old Jacuzzis, game, rec. & Indry rms., play & BBQ areas, conv. to shops, lifts, hiking, special events, daily/weekly rates, summer rates thru Oct. 249-8524. MAMMOTH, Courchevel, fully equipped unit 2 bd., 2 ba., sleeps 6, summer rates for summer activities, fishing, mountain biking, hiking. 661/255-7958. MAMMOTH, Snowcreek, 2 bd., 2 ba., + loft, sleeps 6-8, fully eqpd kitch. incl. microwave, d/w, cable TV, VCR, phone, balcony w/view to mtns, Jacuzzi, sauna, streams, fishponds, close to Mammoth Creek, JPL discount. 626/798-9222 or 626/794-0455. OCEANSIDE, on the sand, charming 1 bd. con-do, panoramic view, walk to pier & harbor, pool/spa, game rm., sleeps 4. 949/786-6548. PACIFIC GROVE hse, 3 bd., 2 ba., f/p, cable tv/vcr, stereo/CD, well-eqpd kit w/microww, beaut. furn., close to golf, bches, 17 Mile Dr., aquarium, Cannery Row, JPL discont. 626/441-3265.